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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,609	04/03/2002	Rino Messere	214502US0PCT	6443

22850 7590 11/08/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

[REDACTED] EXAMINER

UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
1773	[REDACTED]

DATE MAILED: 11/08/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/926,609	MESSERE ET AL.
Examiner	Art Unit
Nikolas J. Uhlir	1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 August 2002.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-23 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) Interview Summary (PTO-413) Paper No(s) _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-3, 5-12, 14, and 16-23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case claim 1 recites the limitation, "an absorbent material porous to water." Applicants have stated in the amendment that support for this limitation can be found on page lines 36-37 coupled with the disclosure on page 6, lines 10-22. The examiner finds no support for the limitation that the absorbent material is "porous to water" from the cited portions of the specification. Page 5, lines 36-37, while providing support for an organic or inorganic absorbent material that is porous does not provide support for an inorganic or organic absorbent material "porous to water." Further, Page 6, lines 10-22 merely states that the **composite** article comprising a porous inorganic or organic material coupled with a hydrophilic polymer is absorbent to water. While the examiner acknowledges that the applicant in this paragraph indicates that the porosity of the inorganic or organic absorbent material has an impact on the water absorptivity of the **composite** article, this does not provide support that the

Art Unit: 1773

inorganic or organic absorbent material **itself** is porous to water. Thus, this limitation constitutes new matter. Correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant claim 1, applicant requires an antifrosting "adsorbent" layer that comprises a hydrophilic polymer and an "absorbent" material porous to water. It is unclear to the examiner how an "adsorbent" composition can be made utilizing "absorbent" filler. Does the applicant intend to claim "absorbent" filler, or "adsorbent" filler? Clarification is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Parker et al. (US4767671).

7. Regarding the limitations of claim 1, and 20, wherein the applicant requires a transparent glazing having a viewing surface that is coated with an antifrosting adsorbing composition, wherein the antifrosting adsorbing composition comprises a

Art Unit: 1773

hydrophilic polymer and an absorbent material porous to water (claim 1), specifically where the absorbent material is a polyurethane (claim 20).

Parker et al. teaches an anti-mist coating for glass or plastic substrates (equivalent to applicants claimed transparent glazing) (column 1, lines 5-6). This anti-mist coating comprises hydrophilic polyurethane that can contain 35-65% of water when hydrated and has a thickness of 3-50 μ m in its anhydrous state (column 2, lines 44-51). Parker et al. also teaches that this coating can be used on a double glazing used in greenhouses to prevent the double glazing from misting, thereby limiting the transmission of light (column 4, lines 8-19). Although Parker et al. does not teach that this polyurethane is "porous" to water, the examiner takes the position that this limitation is met, as Parker et al. clearly teaches that water can be absorbed by the polyurethane composition, and is thus must be porous to water. Last, as written, claim 1 can be interpreted to mean that the hydrophilic polymer and the absorbent material porous to water are the same material. Thus, as Parker et al. clearly teaches a hydrophilic, water absorptive polyurethane composition that provides water absorptive and anti-misting properties to the surface of a transparent glazing, the limitations of claims 1 and 20 are met. Although Parker et al. doesn't teach that the coating composition is "adsorbent," as required by claim 1, Parker et al. clearly teaches a coating composition that comprises a hydrophilic polymer (polyurethane) and an inorganic or organic absorbent material that is porous to water (polyurethane), and thus meets all of the material requirements of claims 1 and 20. Thus, because of these similarities, the examiner takes the position that the limitation that the coating composition of Parker et al. is adsorbent.

8. It has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prime facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-2, 6-10, 16-17, 19, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scholz et al. (US5753373).

11. Regarding the limitations of claims 1-2, 6-7, 10, 21 and 22 wherein the applicant requires a transparent glazing comprising at least one viewing area, wherein the

viewing areas combined with an anti-frosting adsorbent layer deposited on at least one surface of the viewing area, wherein the anti-frosting adsorbent layer comprises at least one hydrophilic polymer and an absorbent material porous to water (claim 1), wherein the layer is deposited on the surface of the substrate (claim 2), the hydrophilic polymer is specifically a polymer or copolymer of vinylpyrrolidone (claim 6), the absorbent material is an inorganic or organic material (claim 7), specifically a mesoporous material (claim 21), more specifically TiO₂ nanoparticles (claim 22), and the coating layer has a thickness of less than 100μ (claim 10)

12. With respect to these limitations, Scholz et al. teaches a coating composition having anti-reflective and anti-fogging properties, wherein the coating composition is adventitiously applied to substrates such as windows, windshields (which meet the requirements of a transparent glazing having at least one viewing area). As Scholz et al. teaches applying the coating solution directly on these substrate, the examiner takes the position that the limitations of claim 2 requiring the coating composition to be formed on the substrate are met. Scholz et al. further teaches that the coating composition that is applied to the surface of the substrate comprises at least inorganic metal oxide particles and a surfactant having at least one hydrophilic and one hydrophobic group (column 3, lines 20-35). Thus, the limitations of claim 1 are met. Scholz et al. teaches that suitable inorganic metal oxide particles include silica, titanium oxide (TiO₂) and others (column 4, line 65-column 5, line 5).

Art Unit: 1773

13. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to select titanium oxide as the inorganic oxide material in Scholz et al.

14. One would have been motivated to select titanium oxide due to the teaching in Scholz et al. of the functional equivalence of Titanium oxide to the other materials listed as suitable for use as the metal oxide material.

15. Thus, when titanium oxide is selected as the metal oxide in Scholz et al. the examiner takes the position that the limitations of claims 7, 21, and 22 are met, as the titanium oxide material taught by Scholz et al. matches the material specified in claim 22 as a suitable material exhibiting the requirements of claims 7 and 21.

16. Scholz et al. further teaches that the coating composition can contain a binder composition to improve its scratch resistance or to improve the adhesion of the coating to the surface of a substrate. Suitable binder compositions for this purpose include water soluble/swellable materials, such as polyvinylpyrrolidone (PVP), polyvinyl acetate, and others (column 19, lines 55-68).

17. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize PVP as a binder composition in Scholz et al.

18. One would have been motivated to select PVP due to the teaching in Scholz et al. of the functional equivalence of PVP to the other materials listed as suitable binder compositions.

19. Thus, the examiner takes the position that the limitations of claim 6, wherein the applicant requires a hydrophilic polymer or copolymer of pyrrolidone are met when PVP

is selected for the binder resin in Scholz et al. as PVP matches one of the materials specified by the applicant on page 5 of the instant specification as a suitable hydrophilic polymer that is a polymer or copolymer of vinylpyrrolidone. Further, it is well established in the art that PVP is hydrophilic, as can be seen from several of the references cited in the prior office action dated 06/07/02.

20. With respect to the limitations of claim 10, Scholz et al. teaches that the coating composition is formed to a thickness of between 500-2500 Angstroms (column 21, lines 1-21). Thus, the thickness limitation of claim 10 ($<100\mu$) is met.

21. Regarding the limitations of claims 8-9, 16-17 and 19, wherein the applicant requires that the coating layer be porous to water (claim 19), and have a porosity "in the wet state" of between $0.1-1000\text{cm}^3/\text{g}$ (claim 8), wherein the pores of the layer have a diameter between $0.5-50\mu$ (claim 9), more specifically $0.1-20\mu\text{m}$ (claim 16), still more specifically between $1-15\mu$ (claim 17).

22. With respect to claims 8 and 16-17. The examiner acknowledges that Scholz et al. does not specifically teach the porosity "in the wet state," as required by claim 8 or the pore diameters required by claims 16-17. However, as the coating composition of Scholz et al. is manufactured from identical materials to those disclosed in the instant specification, the examiner takes the position that these limitations are met. Further, applicants should note that claims 16-17 only require the coating composition to "contain" pores of the requisite diameter. The claims are written using open language, and thus do not require "all" of the pores in the coating composition to fall within the

Art Unit: 1773

recited diameter. Thus, the examiner takes the position that pores of the required diameter will be present in the coating composition of Scholz et al., **to some degree**.

23. With respect to claim 19, Scholz et al. does not specifically teach that the coating composition is porous to water. However, the coating composition of Scholz comprises identical materials as those disclosed by the applicant in both the claims and the specification as suitable materials for forming the coating composition. Further, Scholz et al. teaches that the binder resin is "water swellable" (column 19, lines 55-67). Thus, in light of these considerations, the examiner takes the position that the coating composition will be porous to water to at least some degree. Thus, the limitations of claim 19 are met.

24. Regarding the limitations of claim 20, wherein the applicant requires the absorbent material to be an orthosilicate condensation product. Scholz et al. teaches the coating composition may contain a coupling agent which is capable of binding the surfactant in the composition with the metal oxide particles (column 16, lines 43-45). Suitable coupling agents include silanes, siloxanes, and tetraalkoxy coupling agents such as tetraethylorthosilicate (column 16, line 65-column 17, line 63).

25. Therefore it would have been obvious to one of ordinary skill in the art to select tetraethylorthosilicate as the coupling agent in Scholz et al.

26. One would have been motivated to select tetraethylorthosilicate due to the teaching in Scholz et al. of the functional equivalence of tetraethylorthosilicate to the other coupling agents listed as suitable.

27. Thus, the examiner takes the position that when tetraethylorthosilicate is used as the coupling agent in Scholz et al. the limitations of claim 20 are met, as tetraethylorthosilicate is an orthosilicate and thus meets the type of material recited as suitable for use in claim 20.

28. It has been held that where claimed and prior art products are identical or substantially identical in structure **or composition**, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prime facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433.\

29. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scholz et al. as applied to claim 1 above, and further in view of Creasy et al. (US5262475).

30. Scholz et al. teaches all of the limitations of claim 5 as set forth above for claim 1, except for those limitations set forth below.

31. Scholz et al. does not teach a hydrophilic polymer that is crosslinked.

Art Unit: 1773

32. However, Creasy et al. teaches that crosslinking PVP when it is used anti-fogging compositions provides a degree of control over the properties of the resulting coating. By controlling the crosslink density of the PVP, films that are hard and scratch resistant (high crosslinking) or films that are soft and flexible (low crosslinking) can be formed (column 5, lines 38-51). Further, by crosslinking PVP, strong, clear, and chemically resistant films can be formed (column 3,m lines 13-21)

33. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to crosslink the PVP binder resin taught by Scholz et al.

34. One would have been motivated to make this modification due to the teaching in Creasy et al. that the properties of the resulting coating could be tailored by controlling the amount of crosslinking in the PVP polymer, and the fact that clear, strong, and chemically resistant films are formed from crosslinked PVP.

35. Claims 1, 11-12, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Florentin et al. (US6052965) in view of Scholz et al.

36. Florentin et al. teaches a door or wall of an environmental chamber, in particular a glazed door or wall, and more particularly a refrigerated chamber in which cold or frozen products are displayed (column 1, lines 7-13). This environmental chamber consists of an insulating panel comprising at least two glass substrates, which are separated from one another via surface mounts. The space between the two glass sheets is a vacuum (column 3, lines 5-10). Florentin et al. teaches that this vacuum insulating glazing panel exhibits better thermal insulating properties than prior known insulating panels (column 4, lines 25-32 and Table 1). Florentin teaches depositing a

thin layer of conductive material around the periphery of one of the surfaces of the vacuum insulating glazing, and a depositing separate conductive material on the center portion of the same surface, such that the center and periphery portions can be independently heated via a current provided by electrodes to prevent the appearance of condensation (i.e fog) on the surface of the panel (column 6-20). Thus, the examiner takes the position that the limitations of claims 1, 11-12, and 18, which require a glazing (claim 1), specifically a double pane vacuum insulated glazing (claims 11-12), and a refrigerated door enclosure (claim 18) are met by Florentin et al.

37. However, Florentin et al. does not teach an antifrosting absorbent material comprising a hydrophilic polymer and an absorbent material porous to water, as required by claim 1. Further, Florentin does not teach applying an antifrosting absorbent material having the aforementioned composition to the refrigerated surface of an insulating glazing that comprises at least two glazing units (claims 11 and 14), specifically a vacuum insulated glazing (claim 12), wherein the glazing is part of a refrigerated door enclosure (claim 18).

38. However, Scholz et al. as stated above for claims 1-2, 6-10, 16-19, and 21-22 teaches an anti-fogging composition that comprises a hydrophilic polymer and a porous metal oxide. Such a composition is effective for the prevention of fog on a number of substrates, including windows (column 3, lines 60-65)

39. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the anti-fogging coating composition taught by Scholz et al. on the viewing surfaces of the vacuum insulated glazing taught by Florentin et al.

40. One would have been motivated to make this modification due to the fact that the Scholz et al. coating composition does not require power to operate, and thus would provide a reduction in the operating cost of the environmental chamber taught by Florentin et al.

41. While the examiner acknowledges that neither Florentin nor Scholz teaches utilizing an anti-fog coating composition comprising a hydrophilic polymer and an absorbent material porous to water on a refrigerated window enclosure, these references are both directed towards solving a similar problem, namely preventing a window from losing its transparency due to condensation forming on the surface of the window. As Scholz teaches a solution to this problem that does not require power, there is clear motivation to substitute the anti-fog film taught by Scholz for the current heating solution of Florentin.

42. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (JP08335502) in view of Scholz et al.

43. For the purpose of this examination, the examiner has relied upon a machine translation of the Matsumoto et al. document, a copy of which accompanied the prior office action.

44. With respect to the limitations of claims 1 and 3, Matsumoto teaches a method for preventing the formation of ice on the surface of a substrate. This method comprises applying a synthetic resin film having anti-icing properties to the surface of a substrate (Abstract). Matsumoto teaches that suitable substrates for the anti-icing material include the windshield of a car, glass panes of household windows, and the inspection port

Art Unit: 1773

(window) of a freezer (translation, section 2 and section 13). A suitable ice prevention sheet comprises a polyvinylidene chloride film which has an anti-icing material pasted on it, whereafter the sheet is applied to a substrate such as those already discussed (section 006).

45. Matsumoto et al. does not teach a coating composition comprising a hydrophilic polymer and an absorbent material porous to water.

46. However, Scholz et al. as discussed above for claim 1 teaches an antifogging composition that comprises polyvinylpyrrollidone and a porous metal oxide. His composition is adventitiously applied to substrates such as polyvinylidene chloride and provides anti fogging properties for automobile windows and other substrates (column 20, lines 8-31).

47. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to utilize the composition taught by Scholz et al. as the anti-icing material taught on the polyvinylidene chloride film taught by Matsumoto et al.

48. One would have been motivated to make such a modification due to the teaching in Matsumoto et al that anti-icing materials were preferable applied to polyvinylidene chloride films prior to being applied to the a frost susceptible surface, and the teaching in Scholz et al. of a composition which is adventitiously applied to polyvinylidene chloride and has beneficial anti-fogging properties.

Response to Arguments

49. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

50. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.



nju
November 6, 2002



STEVAN A. RESAN
PRIMARY EXAMINER